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E.S.

Signed

BEFORE THE
ENVIRONMENTAL PROTECTION AGENCY
STATE OF OHIO

IN RE:	:	
	:	
UNITED STATES DEPARTMENT	:	
OF DEFENSE AND UNITED	:	<u>DIRECTOR'S FINAL FINDINGS</u>
STATES AIR FORCE AND	:	<u>AND ORDERS</u>
2750 AIR BASE WING	:	
	:	
WRIGHT-PATTERSON AIR FORCE	:	<u>ADMINISTRATIVE ORDERS ON</u>
BASE	:	<u>CONSENT</u>

These Final Findings and Orders and Administrative Orders on Consent ("Findings" and "Orders") are issued pursuant to the authority vested in the Director of the Ohio Environmental Protection Agency ("OEPA" or "Ohio EPA") by Ohio Revised Code Sections 3734.13, 3734.20 and 6111.03.

STATEMENT OF PURPOSE

The purpose of these Orders is to provide for the performance of a Remedial Investigation and Feasibility Study by Respondents. To accomplish this, the Respondents are ordered to investigate in-depth the nature and extent of environmental contamination and of the threat caused by the placement or disposal or threatened placement or disposal of "Wastes" (as that term is defined herein) at or from the Wright-Patterson Air Force Base. Once sufficient data is developed from the RI and reviewed and concurred in by Ohio EPA, the Respondents are ordered to develop a Feasibility Study to identify, evaluate and select alternatives for appropriate cleanup action(s) at the Site to abate any contamination or threat of contamination in a manner consistent

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with state and federal law. Once appropriate cleanup actions are selected by Respondents and reviewed and concurred in by Ohio EPA, the Respondents are ordered to start and complete the cleanup actions identified in the Feasibility Study by developing and then implementing the Remedial Design and Remedial Action Workplans.

FINDINGS

For the purposes of this Order, OEPA has made the following Findings. None of the Findings related herein shall be considered admissions by the Respondents for any purpose.

1. The United States Department of Defense (hereinafter "DOD"), through the Department of the Air Force ("Air Force") and the 2750th Air Base Wing ("2750 ABW") (together referred to hereinafter as "Respondents") has jurisdiction over the Wright-Patterson Air Force Base ("WPAFB") located in Montgomery and Greene Counties, Ohio.

2. DOD, Air Force and 2750 ABW are "persons" as that term is defined in Ohio Revised Code Chapters 3734 and 6111.

3. WPAFB is located in the Miami River Valley Basin northeast of the City of Dayton and covers approximately 8200 acres divided between "Areas A and C" and "Area B."

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4. WPAFB overlies a portion of the Miami Buried Valley Aquifer which is the source of potable water for WPAFB and the Cities of Dayton and Fairborn, Ohio. The aquifer consists generally of upper and lower sand and gravel water-bearing zones, separated by discontinuous till layers.

5. Areas A and C overlie highly permeable sand and gravel deposits which are capable of yielding 500 to 1,000 gallons of water per minute.

6. Area B overlies permeable, unconsolidated shales and limestone which typically yield 5 to 25 gallons of water per minute.

7. The potential for subterranean migration of Wastes from WPAFB to area aquifers is high due to the high permeabilities and transmissivities of these aquifers.

8. The Respondents have initiated studies under the Air Force's Installation Restoration Program (IRP) to determine the location, nature and extent of contamination present at WPAFB as a result of past Waste disposal practices at the site.

9. According to Respondents' studies, these past Waste disposal practices at WPAFB have resulted in at least thirty (30) Waste disposal sites (such as landfills, burial sites, spill sites, fire training area and coal storage piles) spread throughout the WPAFB Site. Types of Waste identified in this investigation as having been disposed of at WPAFB include solvents, contaminated thinners, degreasing sludges, tetraethyl lead sludge and

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miscellaneous hazardous chemicals, acids and reagents. These Wastes were disposed of at the WPAFB from the 1920's to at least 1973.

10. Three WPAFB well fields, which contain a total of seventeen (17) water-supply production wells, as well as municipal well fields serving the Cities of Dayton and Fairborn, draw potable water from the same Miami Buried Valley Aquifer, a portion of which underlies WPAFB. All of these well fields are located on or near WPAFB.

11. Respondents and the OEPA tested for and found chlorinated and unchlorinated synthetic organic chemical contaminants in all of the WPAFB drinking water wells. Contaminants found include, inter alia, tetrachloroethylene; trichloroethylene; carbon tetrachloride; 1,1,1-trichloroethane; chloroform; 1,2-dichloroethylene and toluene. Some of these contaminants have been measured in concentrations which exceed U.S. EPA-promulgated drinking water standards.

12. The WPAFB is subject to and required to comply with Ohio law.

13. From the 1920's to the present, Respondents deposited, stored, disposed of, placed, caused to be placed, or located Wastes at WPAFB where they caused or threaten to cause pollution of "waters of the state" as that term is defined in Section 6111.01 of the Ohio Revised Code.

14. The actions referred to in paragraph 13, supra, constitute acts of

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pollution or disposal or threatened pollution or disposal of Wastes into waters of the State in violation of R.C. Sections 6111.04, 3734.02 and 3734.11.

15. During the time period referenced in Paragraph 13, supra, DOD, Air Force, 2750 ABW and the United States Army were the "owners and operators" of WPAFB within the meaning of R.C. Chapters 3734 and 6111.

16. The conditions described in Paragraphs 7, 9, 10, 11, 13 and 14, supra, constitute a substantial threat to the public health and to the environment.

ORDERS

1. PERSONS BOUND

A. These Orders shall apply to and be binding upon Respondents, their agents, principals, servants, employees, successors and assigns and upon all persons, firms, subsidiaries and divisions acting under, for, or in concert with Respondents. Respondents shall provide copies of these Orders to all contractors performing any of the work called for or referenced herein.

2. DEFINITIONS

A. Except as defined in the preceeding Findings of Fact or as defined below, the terms used in these Orders and any document required by these Orders shall have the same meaning as used in Ohio Revised Code Chapters 3734 and

6111, CERCLA/SARA, RCRA, or regulations promulgated thereunder:

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1. "DOD" means the United States Department of Defense, its employees, agents, successors, assigns and designated representatives.
2. "Air Force" means the Department of the Air Force, its employees, agents, successors, assigns and designated representatives.
3. "2750 ABW" means the 2750th Air Base Wing at Wright-Patterson Air Force Base, its employees, agents, successors, assigns and designated representatives.
4. "WPAFB" means the Wright-Patterson Air Force Base, consisting of Areas A and C and Area B in Greene and Montgomery Counties, Ohio.
5. "Respondents" means DOD, Air Force and 2750 ABW.
6. "Document" means any record, report, photograph, video tape, correspondence, computer disk or tape, or recorded or retrievable information of any kind, relating to treatment, storage, disposal, investigation and remediation of Wastes at or migrating from WPAFB.
7. "Days" means calendar days unless business days are specified.
8. "Study Area", "Site" or "Facility" means WPAFB and shall include any other area contaminated or threatened to be contaminated by the

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placement or disposal or threatened placement or disposal of Wastes from WPAFB.

9. "Contractor" (or "Contractors") means a qualified person retained by Respondents to perform any of the work required by these Orders and any subcontractor, employee, agent or designee thereof.
10. "Preliminary Assessment" ("PA") means the Respondents' initial evaluation of the site. The PA shall include:
- (A) Identification of the source and nature of the placement or disposal or threat of placement or disposal of Wastes at the Site;
 - (B) Evaluation of the threat to the public health and environment posed thereby;
 - (C) Evaluation of factors necessary to make the determination whether an expedited cleanup is necessary.

These factors include:

- (1) Actual or potential exposure to Wastes by nearby populations, animals or food chain;
- (2) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

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(3) Wastes in drums, barrels, tanks, or other bulk storage containers that may pose a threat of being discharged, spilled, leaked, emitted or placed into the environment;

(4) Wastes in soils largely at or near the surface that may migrate;

(5) Weather conditions that may cause Wastes to migrate or be placed or disposed into the environment; and

(6) Other situations or factors which Ohio EPA deems may pose threats to the public health, welfare or environment; and

(D) Evaluation of any salient characteristic of the placement or disposal or threat of placement or disposal of Wastes requested by the Ohio EPA in writing either before submittal of any PA or in comments to any PA submitted by Respondents to OEPA for review and concurrence.

11. "Site Inspection" ("SI") means the inspection through human or mechanical means to report the physical condition and/or nature and extent of chemical contamination of the Site for use in developing or supplementing any PA.

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12. "Remedial Investigation" ("RI") means the investigation conducted by Respondents in accordance with these Orders and subject to the "Standard of Concurrence" to determine the nature and extent of environmental contamination in and from the Site, and includes the gathering of data necessary to support the Feasibility Study.

The RI shall include sampling; monitoring; assessing the exposure of the public and the environment to the placement or disposal or threatened placement or disposal of Wastes; and the gathering of data determined to be sufficient to develop and select the appropriate cleanup action for Ohio EPA concurrence.

13. "Feasibility Study" ("FS") means the development, screening and analysis of alternatives for cleanup action conducted by Respondents in accordance with these Orders and subject to the "Standard of Concurrence;" and the proposal of a recommended alternative by Respondents for Ohio EPA concurrence.

14. "Remedial Investigation/Feasibility Study" ("RI/FS") shall mean the Remedial Investigation and Feasibility Study together.

15. "Operable Unit" means any discrete area of the Site designated by the Respondent and concurred in by the Ohio EPA to require responsive cleanup action to abate a threat to the public health or the environment before implementation of the approved remedial action occurs.

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16. "Workplan" means that document outlining data needs for characterizing the Site and for support of the FS and, upon completion of the RI/FS, means a document that describes the outline for implementation of the selected remedial action(s). Each required Workplan shall include a detailed description of the proposed investigation and/or implementation activities; a time schedule for those actions; and personnel and equipment requirements. Each Workplan shall also include a sampling plan together with the rationale for sampling activities; locations, quantity and frequency of sampling; sampling and analytical methods; constituents for analysis; and quality control/quality assurance procedures.
17. "Remedial Design" ("RD") means the preparation by Respondents of detailed engineering plans, specifications and construction drawings deemed by Respondents and concurred in by Ohio EPA to be sufficient to implement the remedial action.
18. "Remedial Action" ("RA") means any action proposed by Respondents and concurred in by Ohio EPA to abate permanently placement or disposal or threatened placement or disposal of Wastes to prevent present or future harm to the public health or welfare or to the environment.
19. "Standard of Concurrence" means the standard to be used in the evaluation by OEPA of those documents, elements of work, or actions developed or taken pursuant to these Orders and subject to review and

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concurrence by OEPA, to determine whether or not they, first, comply with State law, including the standards for the abatement or prevention of air or water pollution or soil contamination or the remediation of a threat to public health or safety established in R.C. Section 3734.20; are technically sound; and, finally, to the extent practicable, are consistent with the National Contingency Plan, 40 CFR Part 300, and the following U.S. EPA guidance documents:

1. Guidance on Remedial Investigations Under CERCLA (EPA/540/G-85/002)
2. Guidance on Feasibility Studies Under CERCLA (EPA/540/G-85/003)
3. Superfund Remedial Design and Remedial Action Guidance (OSWER Directive 9355.0-4A)
4. CERCLA Model Scope of Work
5. Draft Alternate Concentration Limit Guidance (OSWER Directive 9481.00-6C)
6. Technical Enforcement Guidance Document
7. Test Methods for Evaluating Solid Wastes (SW-846)
8. Superfund Public Health Evaluation Manual

20. "Wastes" means "pollutants," "industrial wastes," and "other wastes" as those terms are defined in Section 6111.01 of the Ohio Revised Code; "hazardous wastes" as that term is defined in Section 3734.01 of the Ohio Revised Code; "hazardous constituents" as that term is defined in Section 3734-50-10(A) of the Ohio Administrative Code; and/or "hazardous substances" as that term is defined in Section 101 of the

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Comprehensive Environmental Response, Compensation and Liability Act,
42 U.S.C. 9601.

21. "Removal Action" means any action proposed by Respondents and concurred in by Ohio EPA to partially or temporarily abate or protect public health or the environment from conditions caused by the placement or disposal or threatened placement or disposal of Wastes at the Site pending completion of the permanent Remedial Action. Removal Actions shall, to the extent practicable, be consistent with the permanent Remedial Action.

3. PRELIMINARY ASSESSMENT AND SITE INSPECTION

A. Respondents are hereby Ordered to submit, within one hundred and twenty (120) days of the effective date of these Orders, a Preliminary Assessment (PA) for each placement or disposal or threatened placement or disposal of Wastes at the sites identified, but not limited to, the sites described by category below:

Landfills [See Attachments 1,2,3,4,6,7,8 and 10]

Landfills One through Thirteen

Fire Training Areas [See Attachments 1,3 and 6]

Fire Training Areas One through Five

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Central Heating Plants (coal storage piles) [See Attachments 1,4,5,9 and 10]

WPAFB Building 66

WPAFB Building 271

WPAFB Building 170

WPAFB Building 1240

WPAFB Building 770, and

Long-term coal storage pile

Spill Sites (Petroleum, oil and lubricants) [See Attachments 1,3 and 5]

Sites One through Three

Chemical Burial Sites [See Attachments 1,5 and 11]

Sites One and Two

Underground Storage Tanks [See Attachments 1,6,9 and 11]

WPAFB Building 71a

WPAFB Building 4020

Each site is identified by mapping on Attachments 1 through 11 hereto. Each such PA shall be accompanied by a completed work sheet and shall be on forms previously provided to Respondents by Ohio EPA.

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B. Within sixty (60) days of the discovery of any placement or disposal or threatened placement or disposal of Wastes, for which a PA was not completed pursuant to this Order, Respondents shall submit a completed PA and work sheet.

C. Based upon the PA's completed pursuant to this Order, and subject to Ohio EPA concurrence based on the Standard of Concurrence, Respondents shall establish the relative priorities for completing the remainder of the work required herein for response to the release or threat of release, placement or disposal or threat of placement or disposal of Wastes at or from WPAFB. Respondents shall, subject to Ohio EPA concurrence based on the Standard of Concurrence, modify these priorities based upon additional information generated by Respondents pursuant to Orders #4 and #5.

D. Where either Respondents or OEPA determine that the information contained in any PA is inadequate to establish the relative priorities for response to a placement or disposal or threat of placement or disposal of Wastes, Respondents shall submit to OEPA a Workplan subject to OEPA concurrence based on the Standard of Concurrence for a complete Site Inspection ("SI") to gather the necessary information.

E. Respondents shall complete any SI's in accordance with the Workplan concurred in by OEPA.

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4. REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

A. Respondents are hereby Ordered to submit, within sixty (60) days after OEPA concurrence with the PA required by Orders #3, a comprehensive Workplan for a RI/FS for the Site. The Workplan shall address the RI and the FS and may propose expedited response activities within Operable Units or as Removal Actions. The Workplan shall be prepared in a manner which OEPA determines is consistent with the "Statement of Work" included as Attachment 12 hereto. Workplans for the design and implementation of any Removal Action(s) or for any Remedial Action(s) within an Operable Unit shall be submitted to Ohio EPA for review and concurrence and shall be implemented by Respondents in accordance with Order No. 5, below.

B. All work that is required of Respondents under these Orders, including the preparation of any RI/FS Workplan pursuant to this Order, shall be performed in a manner which meets the Standard of Concurrence. Should Respondents identify any inconsistency between any of the laws, rules, regulations or guidance which they are required to follow by these Orders which will affect any of the work required by any of these Orders, Respondents shall, in writing, identify to OEPA each such inconsistency, its effect on the work to be performed, and Respondents' recommendation, along with a supportable rationale justifying each recommendation, on which requirement should be followed. Respondents shall implement the affected work based upon OEPA's resolution of any such inconsistencies.

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C. Respondents shall identify within the Workplan, subject to OEPA review and concurrence, the tasks which are comparable to Tasks 2e, 4b and 10 of the Statement of Work at Attachment 12 to these Orders, for the purpose of soliciting from OEPA a determination as to the requirements of State law and regulations which must be met by any Removal or Remedial Action(s) proposed by Respondents. Respondents shall identify the comparable tasks in time to assure that necessary contracting actions are taken so that the State law requirements are used in the Pre-Investigation Evaluation, Task 2e; the Application of Potential Cleanup Technologies, Task 4b; and the Development of Alternatives, Task 10. Respondents shall ensure that contracting provisions are flexible enough to incorporate additional State requirements as site conditions change or new information becomes available.

D. Within thirty (30) days of the receipt of notification that an RI/FS document failed the Standard of Concurrence, Respondents shall amend the Workplan to OEPA's satisfaction and submit the revised RI/FS Workplan to OEPA. Respondents may request OEPA to allow no more than an additional fourteen (14) days to submit the revised RI/FS Workplan to OEPA.

E. Upon passing the Standard of Concurrence as determined by OEPA, the RI/FS Workplan shall be incorporated by reference into these Orders. Respondents shall begin the RI/FS within thirty (30) days of OEPA approval of the Workplan and shall implement the work described in the approved Workplan in accordance with the standards, specifications and schedules contained therein.

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F. Unless otherwise authorized by OEPA, Respondents shall begin work on the RI/FS only after receiving written concurrence by Ohio EPA.

G. Respondents shall submit to OEPA, for review and concurrence according to the Standard of Concurrence and in accordance with the schedules in the RI/FS Workplan, draft and final reports detailing the performance and results of the RI and FS. Within thirty (30) days of receipt of written notification from OEPA of failure of the Standard of Concurrence by the report or any part thereof, Respondents shall amend the report to meet the Standard of Concurrence and submit the revised report to OEPA.

5. REMEDIAL DESIGN, REMEDIAL ACTION, AND ADDITIONAL WORK.

A. Within one hundred eighty (180) days after the final FS report passes the Standard of Concurrence as determined by OEPA, Respondents shall submit to OEPA a comprehensive Workplan, including schedules, for the RD and implementation of the RA of the OEPA concurred in remedial alternative(s). The Workplan shall address any Operable Units designated by Respondents and concurred in by OEPA.

B. Within thirty (30) days of receipt of written notification by Ohio EPA that the RD/RA Workplan or any part thereof has failed the Standard for Concurrence, Respondents shall amend the Workplan to meet the Standard of

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Concurrence and submit the revised RD/RA Workplan to OEPA. Respondents may request OEPA to allow no more than an additional fourteen (14) days to submit the revised RD/RA Workplan to OEPA.

C. Upon passing the Standard of Concurrence as determined by OEPA, the RD/RA Workplan shall be incorporated by reference into these Orders. Respondents shall, within 30 days of OEPA concurrence of the RD/RA Workplan, implement the work described therein in accordance with the standards, specifications and schedules contained in the Workplan.

D. Unless otherwise authorized by Ohio EPA, Respondents shall begin work in the RD/RA only after receiving written concurrence of Ohio EPA.

E. Should Ohio EPA determine at any time that additional work is necessary to achieve the objectives of any Workplan or of these Orders, Ohio EPA may notify Respondents of the need for such additional work. Within thirty (30) days of receipt of such notification from Ohio EPA, Respondents shall prepare and submit to Ohio EPA for review and concurrence based on the Standard of Concurrence a new or revised Workplan incorporating the additional work. Any such Workplan shall be prepared and reviewed in accordance with the requirements of Order Number 4, supra, (in the case of additional work affecting the RI/FS) or this Order (in the case of additional work affecting the RD/RA).

F. Should Respondents determine that additional work is necessary to achieve the objectives of any Workplan which has passed the Standard of

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Concurrence pursuant to these Orders, Respondents shall submit to Ohio EPA a new or revised Workplan in accordance with the requirements set forth in paragraph 5.E. above.

6. QUALITY ASSURANCE AND QUALITY CONTROL

A. Respondents shall use quality assurance, quality control, and chain of custody procedures throughout all field investigation, sample collection and laboratory analysis activities. Respondents shall obtain the concurrence of Ohio EPA in planning for, and prior to, all sampling and analysis and shall develop element specific quality assurance project plans (QAPP's), as necessary, for review and evaluation under the Standard of Concurrence by Ohio EPA. The QAPP shall be prepared in accordance with U.S. EPA document QAMS-005/80 ("Interim Guidance and Specifications For Preparing Quality Assurance Project Plans") and applicable guidance as developed or relied upon by Ohio EPA. Each QAPP shall include, but not be limited to, element specific sampling methodology; sample storage and shipping methods; documentation, sampling and chain of custody procedures; laboratory quality control/quality assurance procedures; and calibration procedures and frequency.

B. Respondents shall obtain the prior concurrence of Ohio EPA of the laboratory(ies) used by Respondents for analyses, require that such analyses be performed according to U.S. EPA approved methods or methods concurred in by Ohio EPA, and submit all protocols to be used for sample analyses to Ohio EPA

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for review and evaluation under the Standard of Concurrence prior to the commencement of sampling. Respondents shall ensure that the laboratory(ies) used for sample analyses participate(s) in a quality assurance/quality control program approved by U.S. EPA.

C. Respondents shall ensure that Ohio EPA personnel or their authorized representatives shall be allowed access to the laboratory(ies) and laboratory personnel used by the Respondents in implementing this Order. This access shall be solely for the purpose of validating sample analyses, protocols and procedures required by these Orders.

7. DOCUMENT SUBMITTAL AND REVIEW

A. Respondents shall, in preparing schedules as part of any Workplan required herein, include a period of not less than thirty (30) days for OEPA review and comment on the various submittals Respondent is required to make to OEPA. Complex documents including, but not limited to, the Quality Assurance Project Plan(s), the FS report and the RD/RA Workplan may require a longer review period, in which case Respondents may be so notified by OEPA within twenty (20) days of OEPA's receipt of any such document.

B. In the event that any document required to be submitted by Respondents fails the Standard of Concurrence as determined by OEPA, in whole or in part, OEPA will include in the notification of failure a statement as to the

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modifications or additions which must be made to the document prior to its approval together with an explanation as to why such modifications or additions are necessary.

8. ACCESS

A. Ohio EPA through its authorized representatives shall have the authority to enter and freely move about at reasonable times all property at WPAFB for purposes consistent with these Orders and state law. Such authority includes inspecting records, operating logs, and contracts related to the investigative and cleanup work at the site; reviewing the progress of Respondents in carrying out the terms of these Orders; conducting such tests as Ohio EPA deems necessary; interviewing Respondents' personnel; and verifying the data submitted to Ohio EPA by Respondents.

B. The right of access of Ohio EPA is subject to those necessary regulations to protect national security. Any regulation asserted by Respondents to deny Ohio EPA access to the Site shall be clearly documented by Respondents within thirty days of the entry of these Orders. Should Respondents deny Ohio EPA access to any portion of the Site, the Respondents shall submit in writing to Ohio EPA an explanation of the reason for the denial and a plan for accomodating the access in a less intrusive manner.

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9. Miscellaneous

A. In completing the work required herein, Respondents may rely on data, results, findings or conclusions generated through any effort which is not required by these Orders only if Respondents demonstrate to the satisfaction of Ohio EPA that such data, results, findings or conclusions are technically valid and, had those efforts been conducted pursuant to these Orders, would have complied with the standards described in these Orders.

B. All work undertaken by Respondents pursuant to these Orders shall be performed in compliance with all applicable federal, state and local laws and regulations. Respondents shall provide sufficient information within the Workplans to allow an evaluation by OEPA as to whether a proposed activity will require a permit, exemption or waiver under State law. Within the limits of OEPA authority, the Director agrees to expedite any required permitting process and to issue such permits, exemptions or waivers at the time OEPA issues its notice that a Workplan has met the Standard of Concurrence.

C. Within ten (10) days of the effective date of these Orders, Respondents shall designate a single project coordinator for the purposes of overseeing the work required herein and for purposes of coordinating with the Ohio EPA project coordinator. To the maximum extent practicable, communications between Respondents and Ohio EPA on all documents and correspondence concerning the activities performed pursuant to these Orders shall be through the project coordinators.

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D. Ohio EPA and Respondents may change their respective coordinators. Such a change shall be accomplished by notifying the other party in writing within five (5) days of the change.

E. Without limitation of any authority granted to Ohio EPA by law or regulation, the Ohio EPA project coordinator may:

- i. access the site subject to Paragraph 8.B., above;
- ii. take samples;
- iii. ensure that the type, quantity and sampling location of any samples taken by Respondents is in accordance with the terms of any work plan;
- iv. observe and record by written, electronic or photographic means the Respondents' progress or compliance with these Orders except as specified in Paragraph 8.B., above;
- v. review documents, records or files detailing the Respondents' progress on any work or interview any of Respondents' employees about the subject matter of these Orders or the work.

Respondents' project coordinator or his designee shall be on the site during all hours of work and shall make himself reasonably available to the Ohio EPA

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project coordinator. The absence of the Ohio EPA project coordinator from the Site shall not be a cause for the stoppage of work nor shall his presence signify Ohio EPA approval of any of the work performed. No informal advice, guidance, suggestions or comments by the Ohio EPA project coordinator shall be construed as relieving Respondents of their obligations to obtain any formal OEPA concurrence required by these Orders.

F. Respondents shall provide monthly written progress reports to Ohio EPA. At a minimum, these progress reports shall: (1) describe the actions which have been taken pursuant to these Orders; (2) include all results of sampling and tests and other data received and generated by Respondents; (3) include any photographs illustrating actions taken by Respondents at the site; (4) include all activities completed pursuant to these Orders during the past month, as well as such actions and plans which are scheduled for the next month; and (5) describe any delays or problems that arose in the execution of the Workplan during the month and any steps that were taken by Respondents to alleviate the delays or problems. Each previous month's report shall be submitted to Ohio EPA by certified mail by the tenth day of each successive month following the effective date of these Orders.

G. To the extent that activities required by these Orders must be carried out on property other than Respondents' property, the Respondents shall use their best efforts to obtain access rights from those property owners which shall provide for reasonable access for the Respondents, Ohio EPA and their authorized representatives. In the event that Respondents are unable to obtain

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such access rights, the Respondents shall notify Ohio EPA of their inability to reach such agreement and the Respondents' efforts to obtain such agreements.

H. Respondents shall make the results of any sampling and/or tests or other data generated by or for Respondents under these Orders available to Ohio EPA, and shall submit the results of these samples or tests or data in progress reports as described in paragraph 9 G.

I. At the request of Ohio EPA, Respondents shall allow split or duplicate samples to be taken by Ohio EPA or its authorized representative of any samples collected by Respondents. Except for emergency circumstances, Respondents shall notify Ohio EPA at least fourteen (14) days in advance of the date(s) of sample collection work.

J. Respondents shall preserve during the pendency of these Orders, and for a minimum of six (6) years after notification by OEPA that the work required herein has been completed, all records and documents in Respondents' possession or in the possession of their divisions, employees, agents, accountants or Contractors which relate in any way to the site despite any document retention policy to the contrary. Respondents shall notify Ohio EPA at least thirty (30) days prior to the destruction of any such documents. Upon request by Ohio EPA, Respondents shall make such records or copies of any such records available to Ohio EPA for copying.

L. Respondents shall notify Ohio EPA of any delay or anticipated delay which occurs or may occur in the performance of the work required by these

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Orders. Notification of delays shall be made immediately by oral notification to the Ohio EPA project coordinator. A record of minor delays shall be incorporated in the Respondents' monthly progress report to Ohio EPA. Notification of delays longer than five (5) days which may affect the schedules for the timely completion of the work shall be made by written notification, in addition to the oral notification required herein, to Ohio EPA and shall be submitted within three (3) days of the oral or telephonic notification. Such oral and written notification shall describe fully the nature of the delay; the reasons for and the expected duration of the delay; and the action which Respondents will take to mitigate the delay.

10. DISPUTE RESOLUTION

A. The parties shall make reasonable efforts to informally and in good faith resolve all disputes or differences of opinion.

B. Should Respondents disagree with OEPA's position on an action or disagree on the adequacy of a Workplan, investigation, study, design, or Remedial or Removal Action, or any other matter related to these Orders, then, Respondents may invoke dispute resolution. Respondents and OEPA will first attempt to resolve the dispute at the lowest informal level.

C. If the matter cannot be resolved informally, it shall be raised by Respondents to the Chief of Staff, Air Force Logistics Command and the Director

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within fourteen (14) days of receipt of OEPA's written decision on the matter by Respondents.

D. Failure of Respondents to raise the matter to formal dispute resolution shall mean that the original or modified determination by OEPA shall control the matter.

E. During the pendency of any dispute under this Paragraph, Respondents shall continue to implement any work unaffected by the dispute.

11. POTENTIAL FOR FORCE MAJEURE

In any action to enforce any of the provisions of these Orders, Respondents may raise at that time the question of whether they are entitled to a defense that their conduct was caused by reasons beyond their control such as, by way of example but not limitation, acts of God, unusually severe weather conditions, strikes, acts of war or civil disturbances, or orders of any regulatory agency. While the State of Ohio and the Ohio EPA do not agree that such a defense exists, it is, however, hereby agreed upon by the parties that it is premature at this time to raise and adjudicate the existence of such a defense and that the appropriate point at which to do so is at the time, if ever, that an enforcement action is commenced. Acceptance of these Orders without a force majeure clause does not constitute a waiver by Respondents of any rights or defenses they may have under applicable law.

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12. COVENANT NOT TO SUE

From the effective date of these Orders, for as long as the terms herein are complied with, and upon and after termination of these Orders pursuant to provisions of Paragraph 15, OEPA covenants not to sue the Respondents for the conduct and completion of the activities and work called for by these Orders, except OEPA and the State of Ohio reserve the right to seek cost recovery, including cost recovery for the cost of the review of documents or work required by these Orders, and natural resources damages. Nothing herein shall be deemed to grant any rights to persons not a party to these Orders, and OEPA reserves all rights against such persons.

13. SEVERABILITY

A. If any provision of a section of these Orders or the application thereof to any person or circumstance is judicially held invalid, the invalidity does not affect other provisions or applications of these Orders which can be given effect without the invalid provision or application. To this end, the provisions of these Orders are severable.

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By: Mary Gavin Date 2-17-88

14. RESERVATION OF RIGHTS

A. Nothing in these Orders shall be construed to limit in any way the right of the public or of any citizen to obtain public information about the work to be performed under these Orders or the technical basis for these Orders; the right of the public, any citizen and the State of Ohio to sue or to intervene in any action to enforce state or federal law against Respondents; or the right of the public or any citizen to be fully informed pursuant to the procedures established by state and federal environmental law of the actions taken pursuant to these Orders.

B. Except as provided for in Paragraph 12, above, the Respondents are not released from any liability which they may have pursuant to any provisions of state and federal law. The State of Ohio reserves the right to take any action pursuant to Ohio Revised Code Chapters 3734 and 6111 and the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, 42 U.S.C. Section 9601, et seq., and/or any other available legal authority, including but not limited to, the right to implement any cleanup action Ohio EPA deems appropriate; to seek cost recovery, including cost recovery for the cost of the review of documents or work required by these Orders; injunctive relief; monetary penalties; attorneys' fees; natural resources damages; and other damage claims and punitive damages for any violation of law or of these Orders. Nothing in these Orders shall limit the rights of the State described in Section 121(f)(3) of CERCLA.

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15. TERMINATION

A. The provisions of these Orders shall be deemed satisfied upon Respondents' receipt of written notice from Ohio EPA that the Respondents have demonstrated, to the satisfaction of Ohio EPA, that all of the terms of these Orders, including any additional tasks which OEPA has determined to be necessary, have been completed. Upon such demonstration by the Respondents, said written notice shall not be unreasonably withheld or delayed.

16. ADMISSIONS

Nothing in these Orders, including the Workplan, is intended by the parties to be, nor shall they be, an admission of facts or law, an estoppel or a waiver of defenses by Respondents in any unrelated proceedings, and the Respondents specifically do not admit that conditions at WPAFB present an imminent and substantial endangerment to public health, welfare, or the environment.

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By: Mary Cavin Date 2-17-88

In signing these Orders, Respondents agree that they will not challenge either in law or in equity or contest the lawfulness or reasonableness of the entry of these Orders or the jurisdiction of the Ohio EPA to issue these Orders before any tribunal of competent jurisdiction.

IT IS SO AGREED

Stephen L. Kollar
For Respondents

9 FEB 88
Date

IT IS SO AGREED AND ORDERED, by the Director of the Ohio Environmental Protection Agency.

Richard L. Shank
Director

9 FEB 88
Date

I hereby certify to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Mary Gavin Date 2-17-88

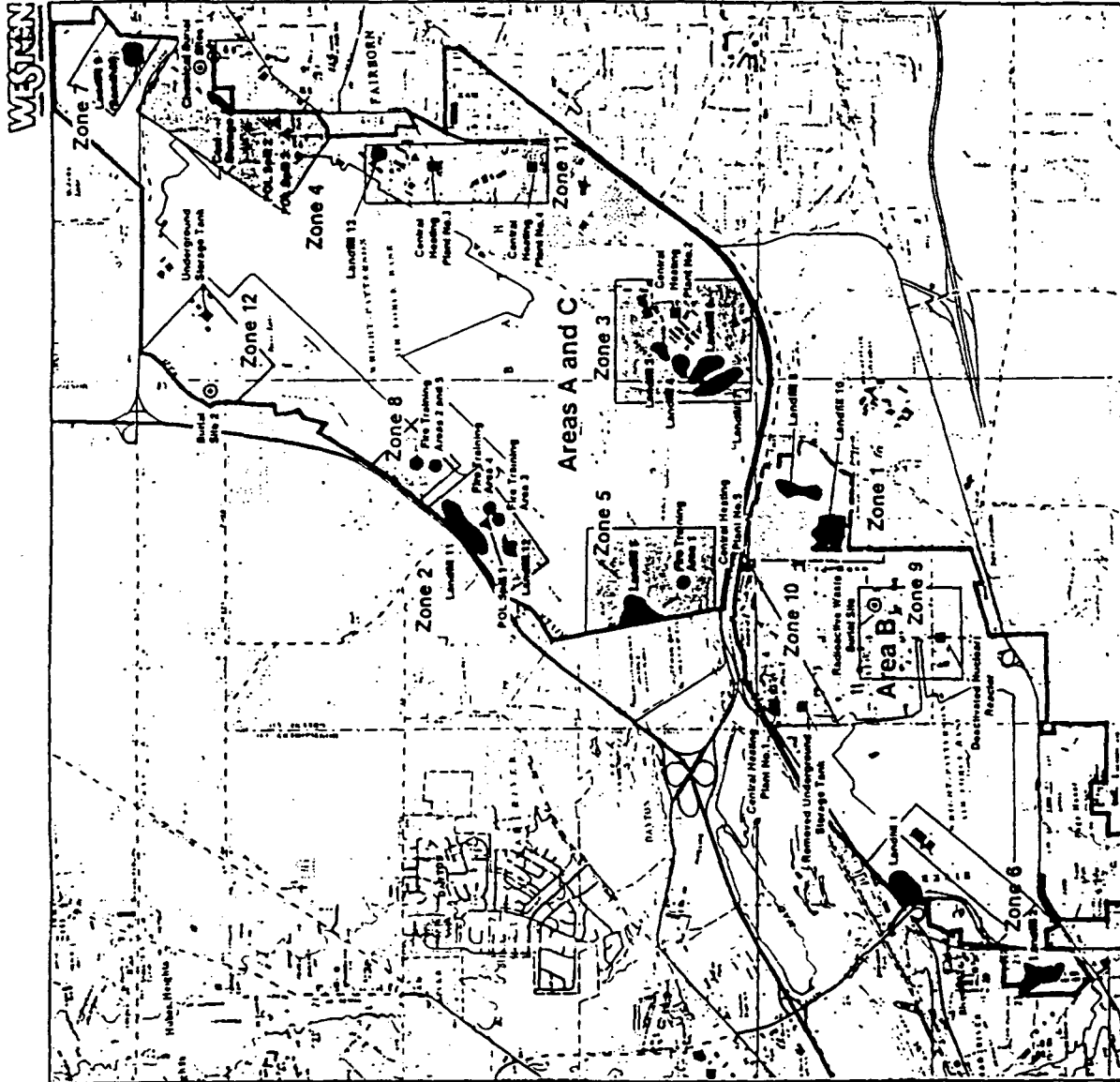


FIGURE 1-3 LOCATION OF ALL PHASE II, STAGE 2 SITES AND ZONES AT WRIGHT PATTERSON AFB

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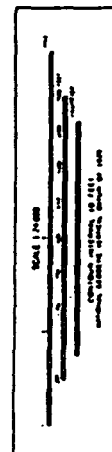
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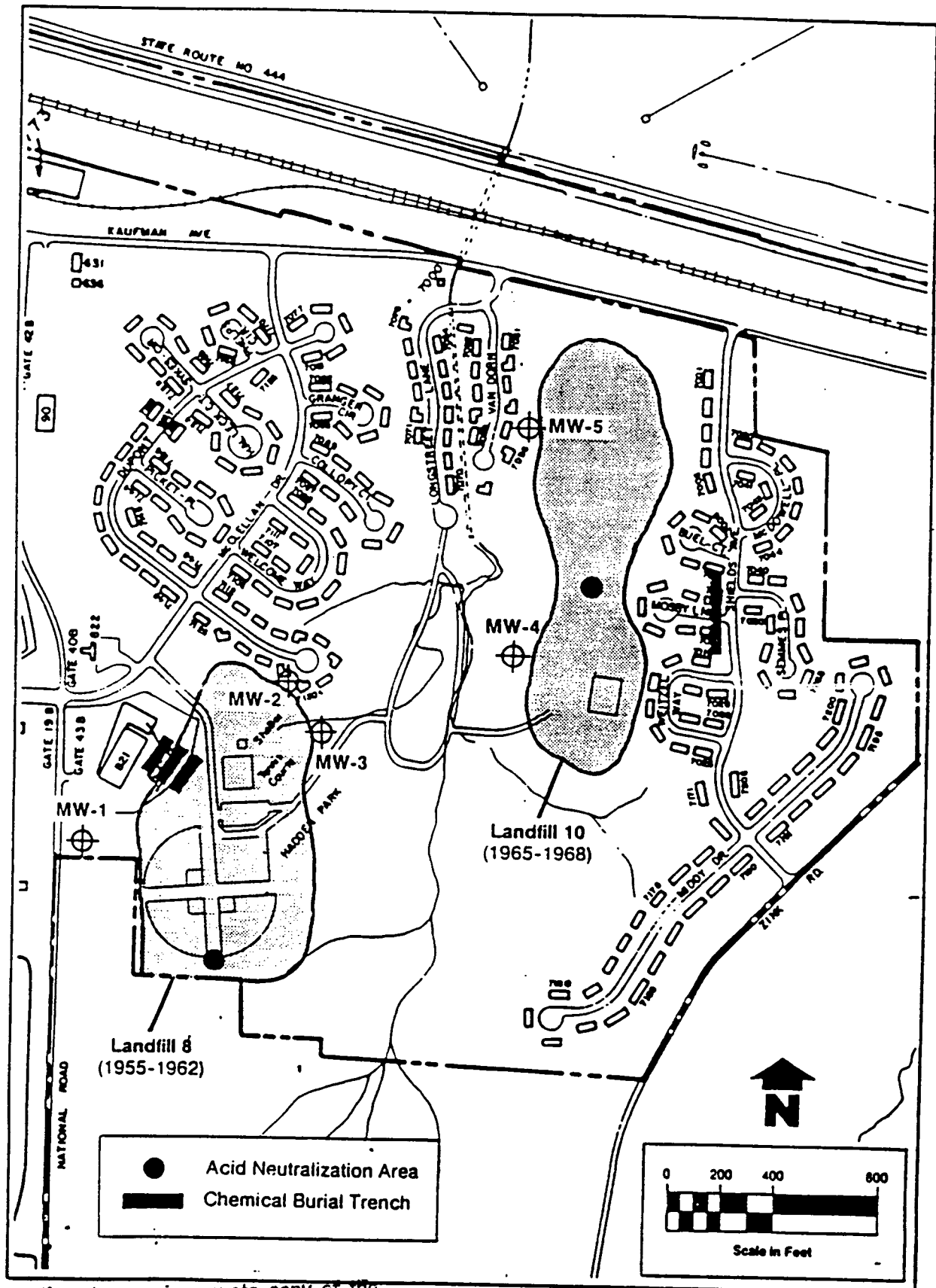
- Landfills
- Fire Training Areas
- POL Spills
- Chemical burial Sites
- Buildings

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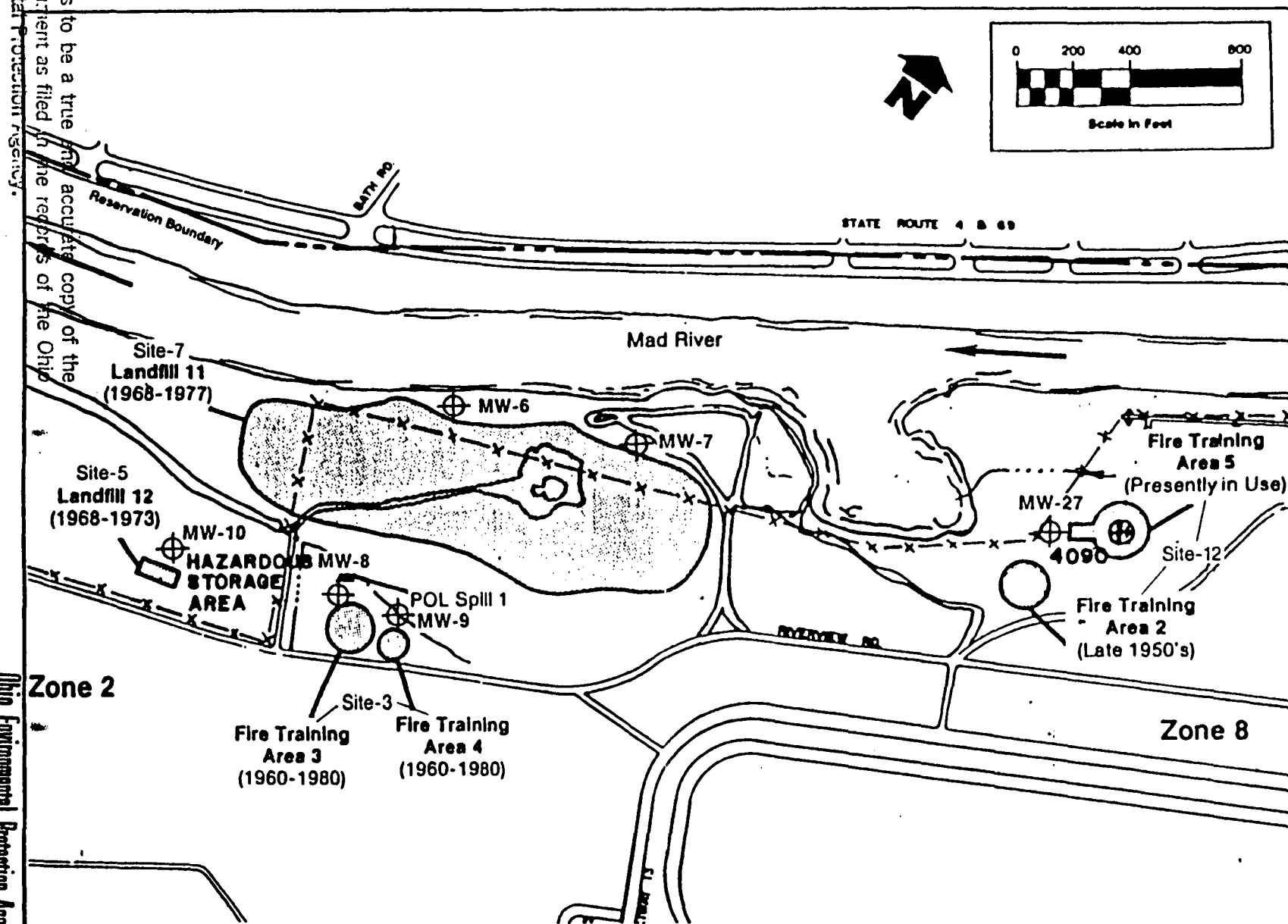
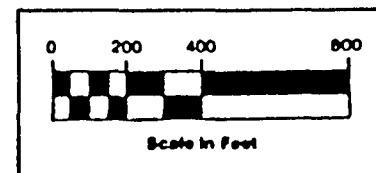


FIGURE 1-5 GENERAL SITE MAP OF ZONES 2 AND 8

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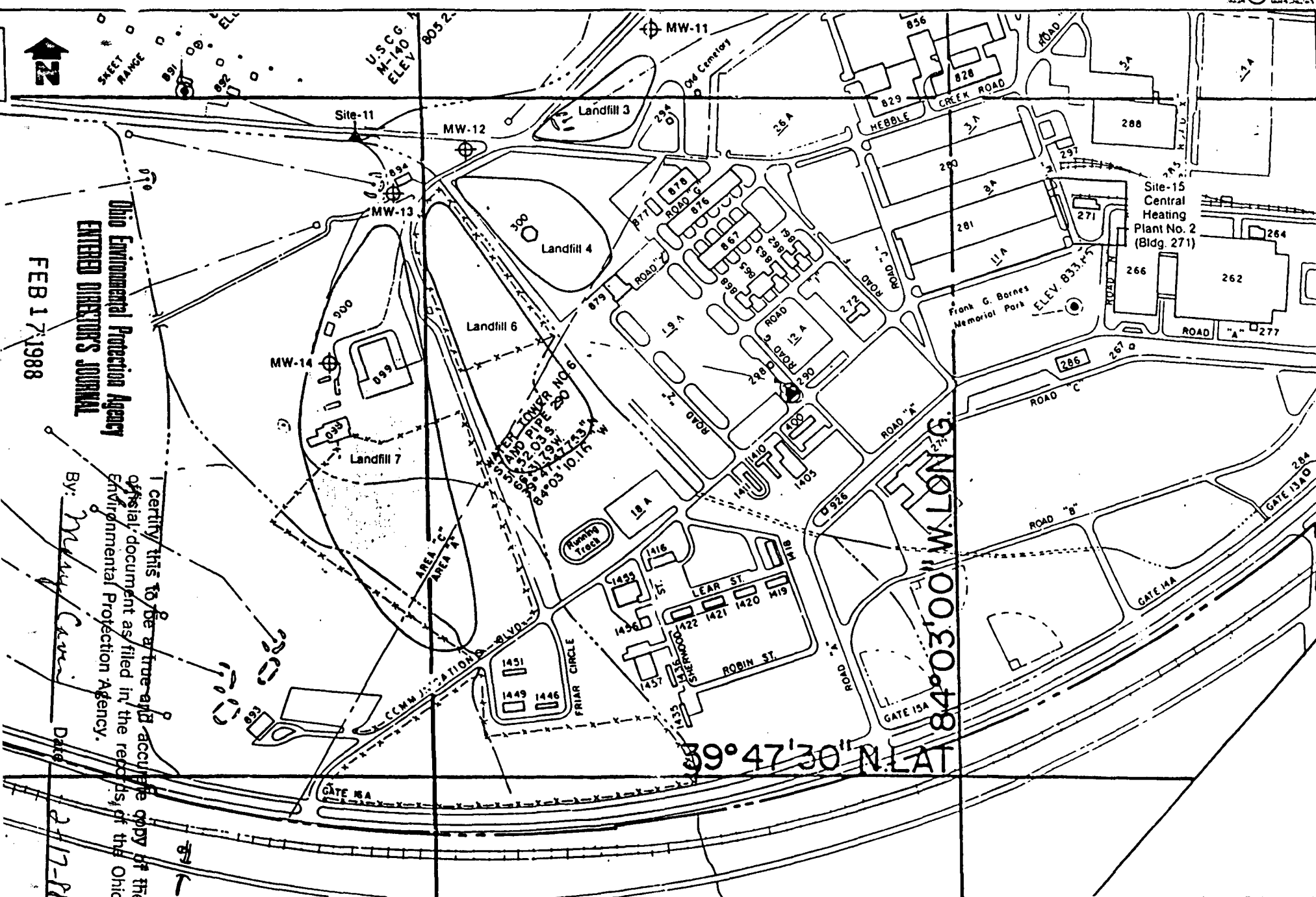
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By: Michael Carr Date: 2-27-81



.. FIGURE 1-6 GENERAL SITE MAP OF ZONE 3

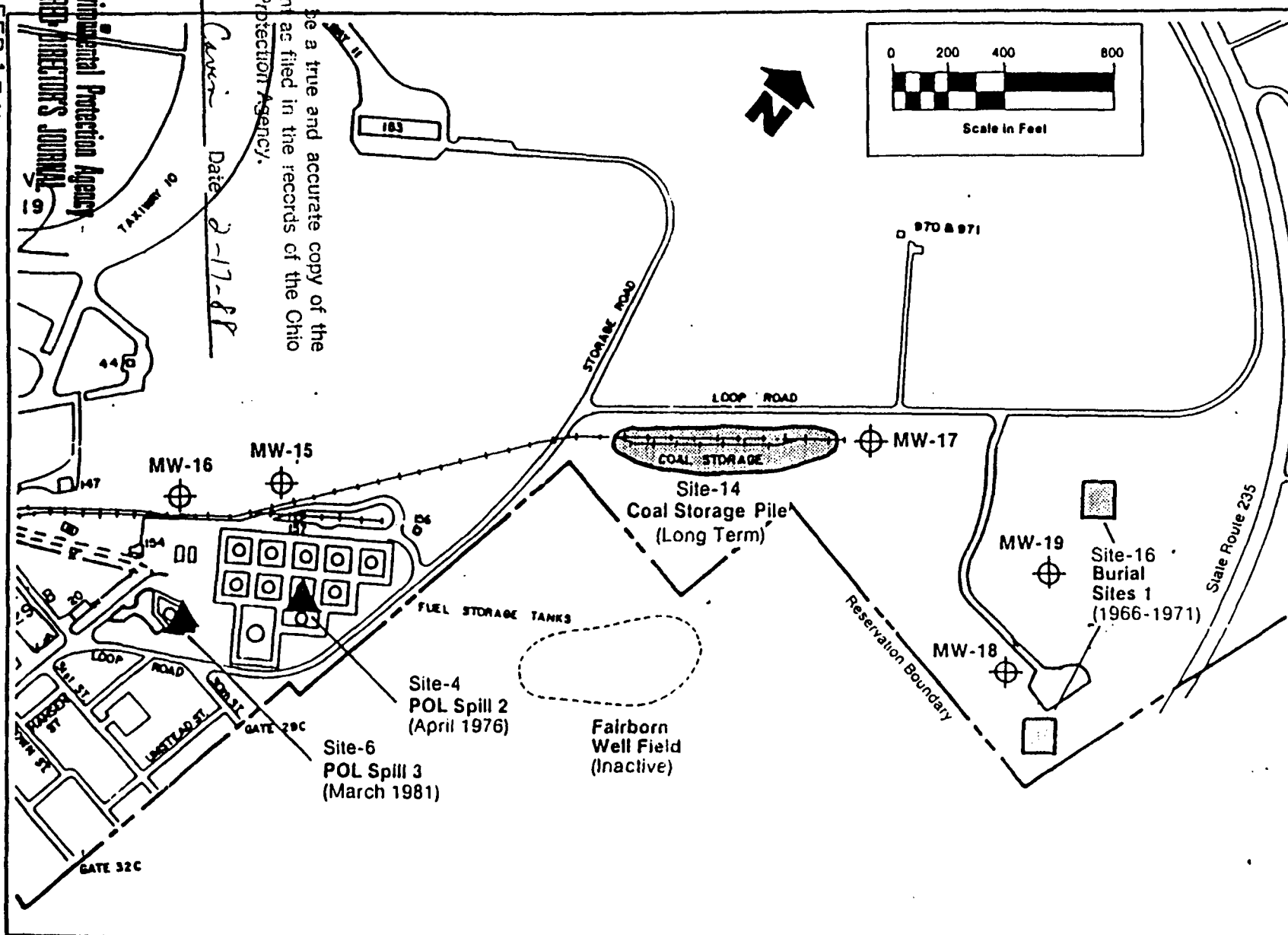
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FIGURE 1-7 GENERAL SITE MAP OF ZONE 4

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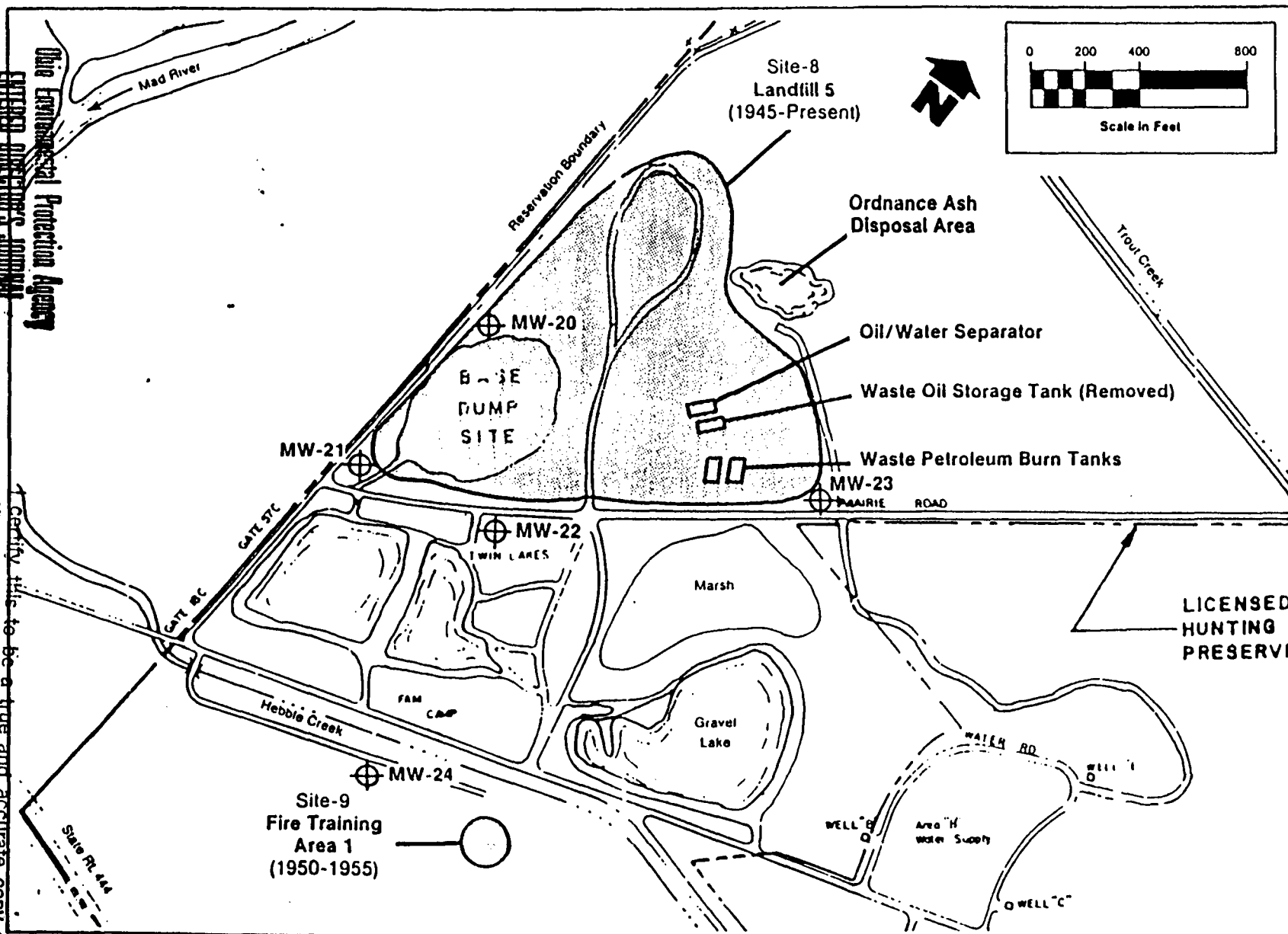


FIGURE 1-8 GENERAL SITE MAP OF ZONE 5

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1-21 By: Mary Green Date 2-17-88

ATTACHMENT /

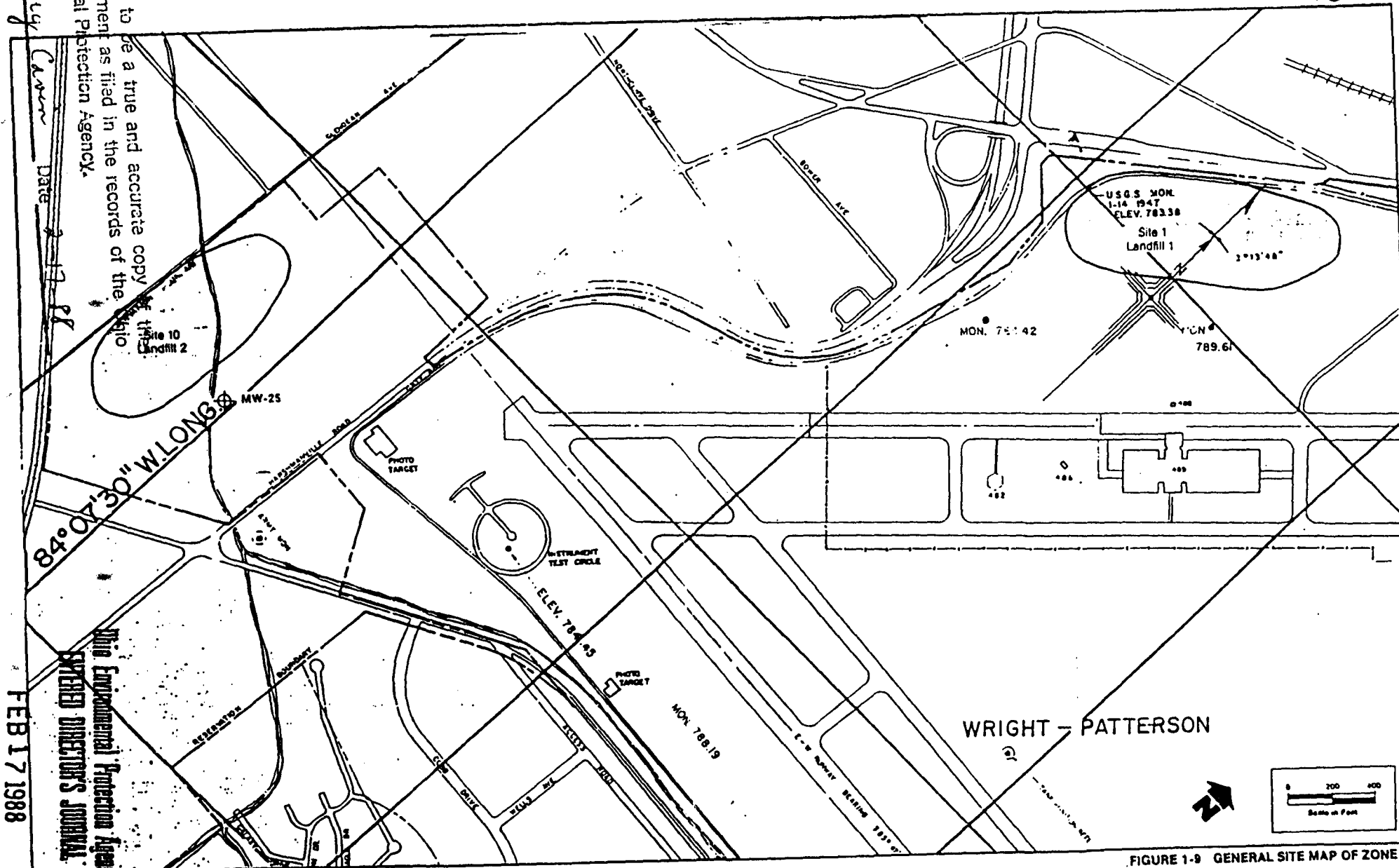


FIGURE 1-9 GENERAL SITE MAP OF ZONE 8

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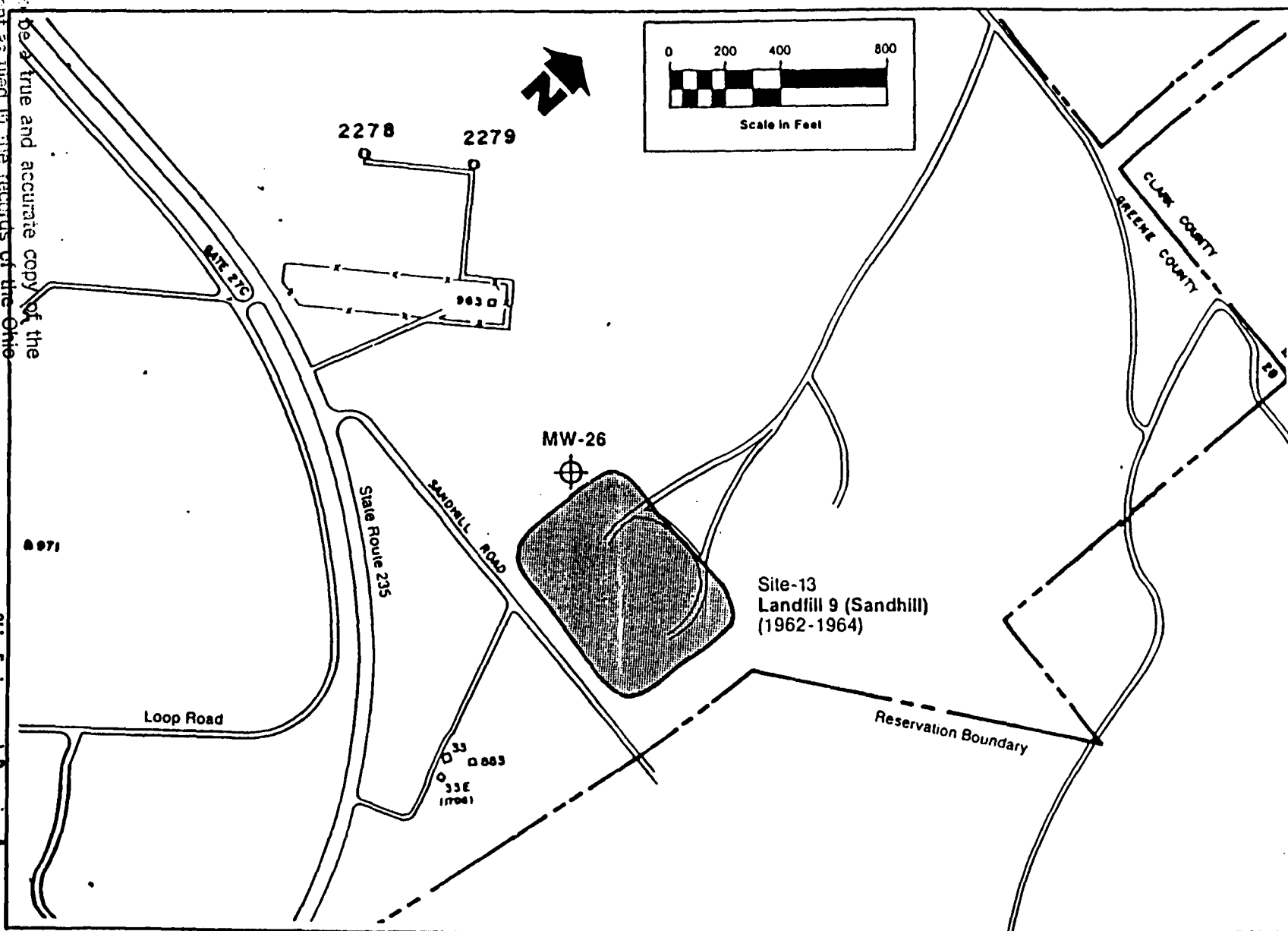


FIGURE 1-10 GENERAL SITE MAP OF ZONE 7

This map is a true and accurate copy of the map of the area as filed in the records of the Ohio Environmental Protection Agency.

Map Case: Date 2-17-88

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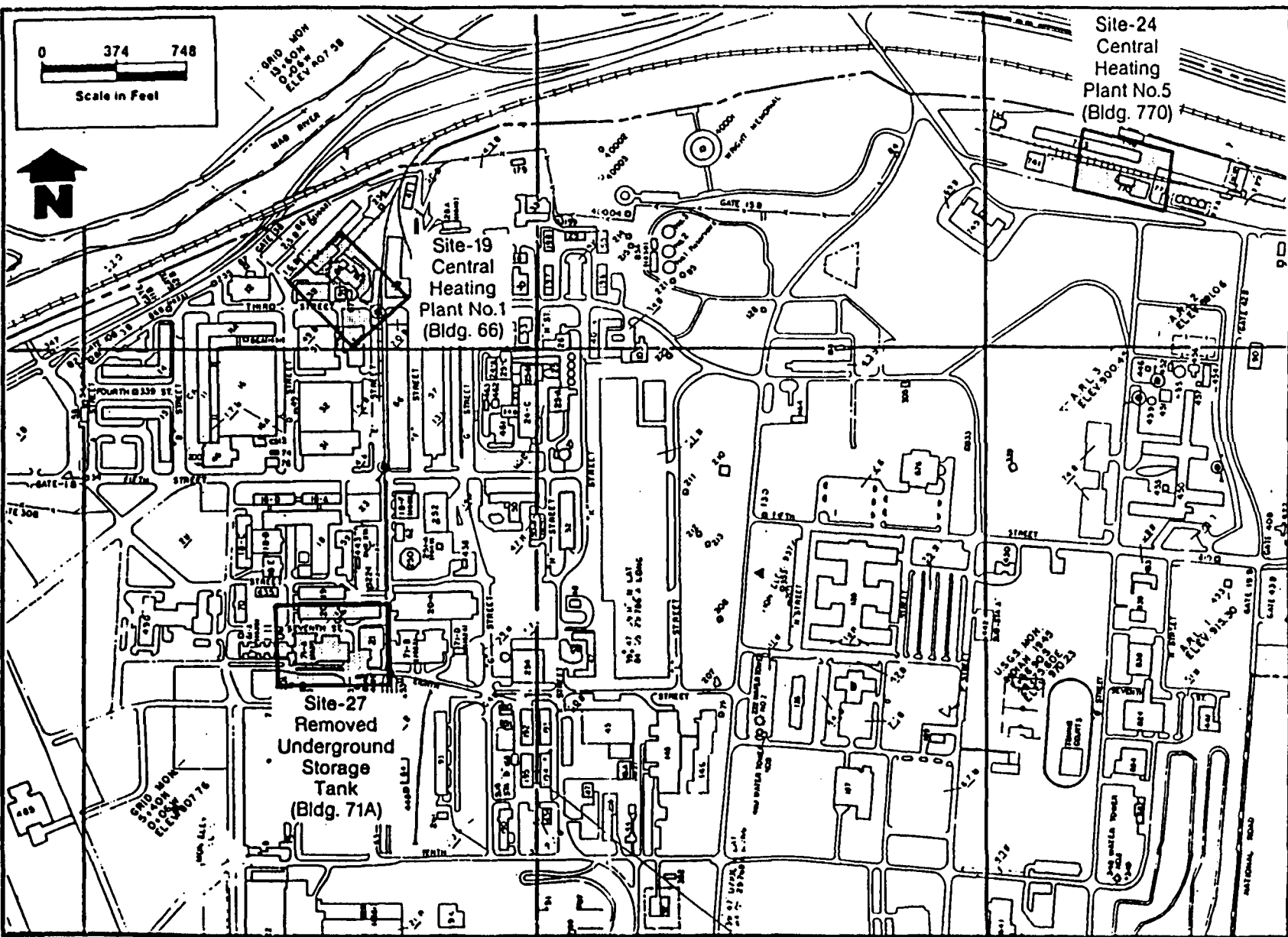



FIGURE 1-12 GENERAL SITE MAP OF ZONE 10

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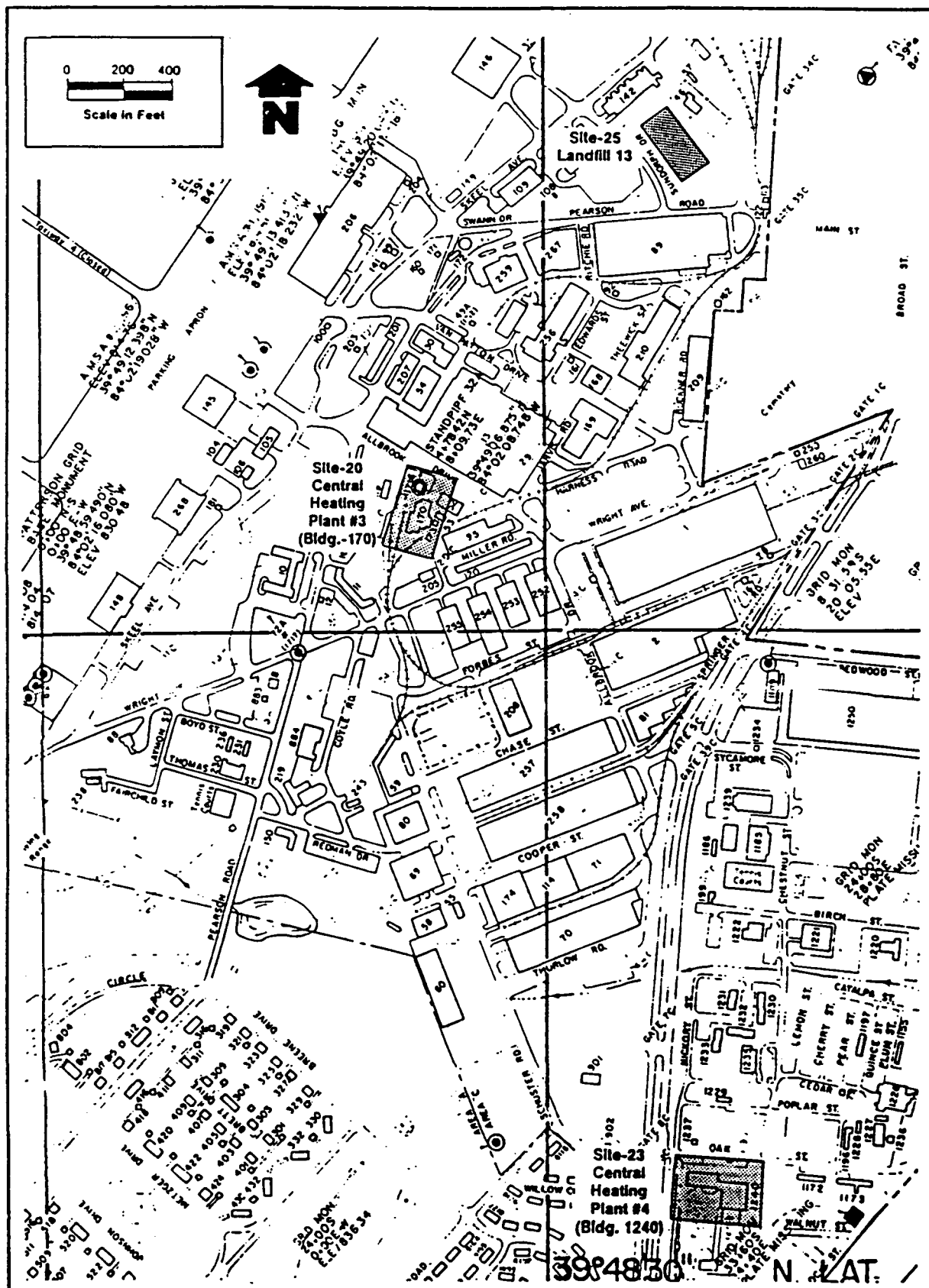
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FIGURE 1-13 GENERAL SITE MAP OF ZONE 11

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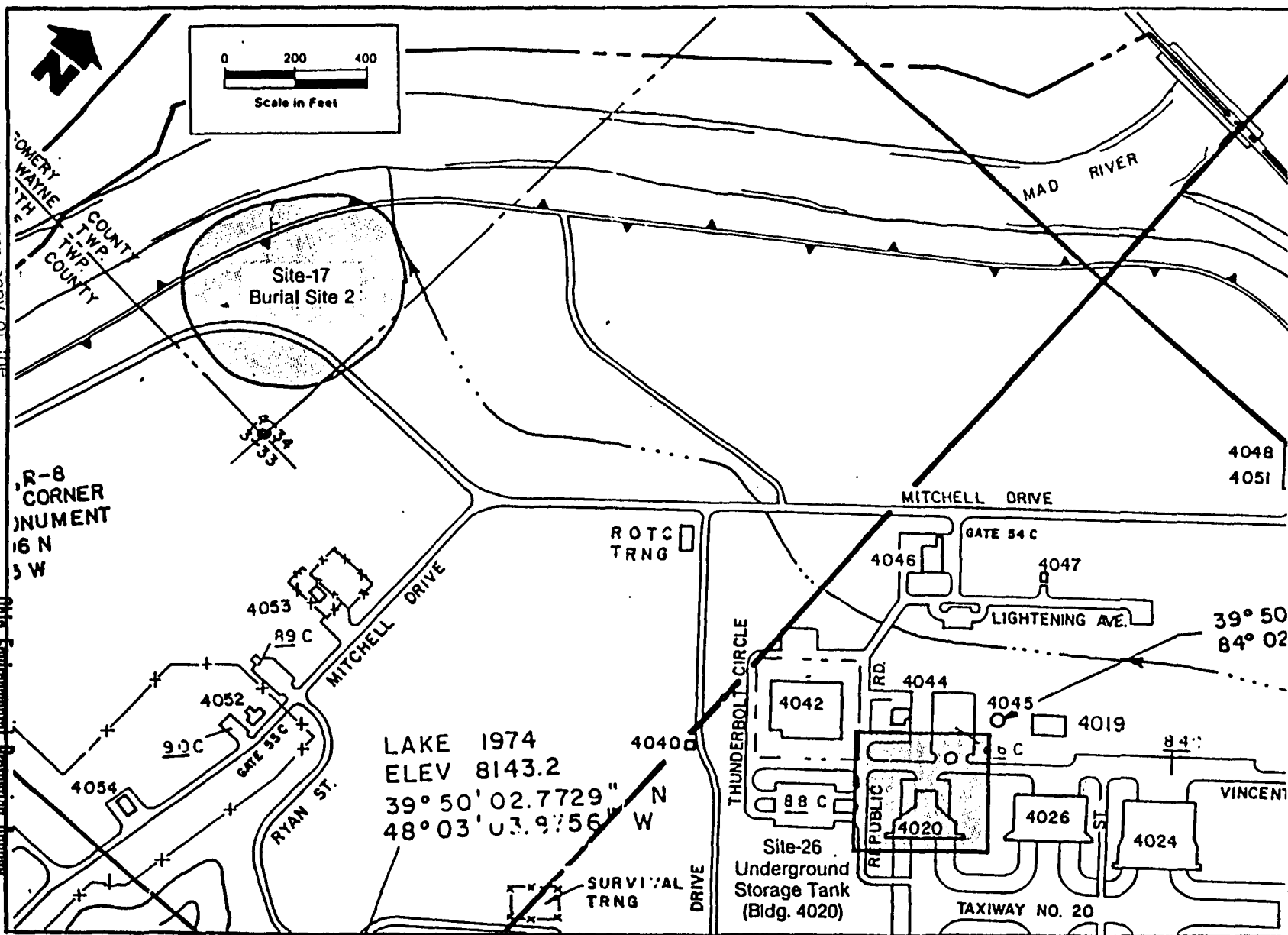


FIGURE 1-14 GENERAL SITE MAP OF ZONE 12

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By: Mary Carr Date 2-17-88

ATTACHMENT 12
STATEMENT OF WORK
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

REMEDIAL INVESTIGATION

PURPOSE:

The purpose of this remedial investigation is to determine the nature and extent of the problem at the site and to gather all necessary data to support the feasibility study. The Respondents shall furnish all personnel, materials, and services necessary for, or incidental to, performing the remedial investigation at Wright-Patterson Air Force Base.

SCOPE:

The remedial investigation consists of seven tasks:

Task 1 -- Description of Current Situation

Task 2 -- Investigation Support

Task 3 -- Site Investigations

Task 4 -- Site Investigation Analysis

Task 5 -- Laboratory and Bench-Scale Studies

Task 6 -- Final Report

Task 7 -- Additional Requirements

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TASK 1 -- DESCRIPTION OF CURRENT SITUATION

By: Mary Gavin Date 2-17-88

The Respondents shall describe the background of the site and its problems and outline the purpose and need for remedial investigation of the site. Data gathered during previous investigations, site inspections, and other relevant activities shall be used. Previous investigations shall be summarized and referenced.

- a. Site Background. Prepare a summary of the regional location, pertinent area boundary features, and general site physiography, hydrology, geology, and current and historic land and water use. The total area of the site and the general history relative to the use of the site for hazardous waste, hazardous constituents, pollutants, industrial wastes or other waste activity should be defined.

- b. Nature and Extent of Problem. Prepare a summary of actual and potential on-site and off-site health and environmental effects. This summary shall include: the types, physical states, and amounts of hazardous wastes, hazardous constituents, pollutants, industrial wastes or other wastes; the existence and condition of drums, tanks, landfills, surface ponding, and other containers; affected media and pathways of exposure; contaminated releases such as leachate and runoff; and any human or environmental exposure. Emphasis shall be placed on describing the threat or potential threat to public health and the environment.
- c. History of Response Actions. Prepare a summary of any response actions conducted by Federal, State, local, or private parties. This summary shall include field inspections, sampling surveys, cleanup activities, and other technical investigations.

TASK 2 -- INVESTIGATION SUPPORT

The Respondents shall conduct preliminary work necessary to scope and conduct the site investigations and feasibility study.

- a. Safety Plan. A safety plan shall be developed to protect the health and safety of personnel involved in the site investigations and the surrounding community. The plan will be consistent with:

EPA Order 1440.3 -- Respiratory Protection

EPA Order 1440.2 -- Health and Safety Requirements
for Employees Engaged in Field Activities

EPA Occupational Health and Safety Manual

EPA Interim Standard Operating Safety Procedures
and other EPA guidance as developed by EPA

Site Conditions

The Safety Plan should identify problems or hazards that may be encountered and their solution. Safety procedures to be followed to protect third parties, such as visitors or the surrounding community, should also be provided.

- b. Define Boundary Conditions. Establish site boundary conditions to limit the area of remedial investigations. The boundary conditions shall be set so that subsequent investigations will cover the contaminated media in sufficient detail to support following activities, e.g. feasibility study. Boundary conditions will also be used to identify boundaries for site access control and site security.

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- c. Site Map. Prepare a site map showing all wetlands, surface water features, tanks, buildings, utilities, paved areas, easements, right-of-ways, and other features. The map shall be of sufficient detail and accuracy to locate all current or future work performed at the site.
- d. Community Relations Plan. Prepare a plan, based on discussions with responsible local and State officials and interested community leaders, for the dissemination of information to the public regarding investigation and feasibility study activities and results. Opportunities for comment and input by citizen, community and other groups must also be identified and incorporated into the plan.
- e. Pre-Investigation Evaluation. Prior to starting any remedial investigations, the Respondents shall assess the site conditions to identify potential remedial technologies applicable to the site and associated data needed to evaluate alternatives based on these technologies for the feasibility studies. A report shall be prepared for State review identifying broad categories of remedial technologies that may be applicable to the site and data needs.

TASK 3 -- SITE INVESTIGATIONS

The Respondents shall conduct investigations necessary to characterize the site and its actual or potential hazard to public health and the environment. The investigations shall produce sufficient data to assess remedial alternatives and support the detailed evaluation of alternatives during the feasibility study.

- a. The Respondents shall prepare and submit for State review and concurrence a detailed work plan outlining data needs for characterizing the site and for support of the feasibility study. The work plan shall include an outline of proposed investigation activities, a time schedule, personnel and equipment requirements. The work plan shall also include a sampling plan indicating rationales for sampling activities, location, quantity, and frequency of sampling, sampling and analysis methods, constituents for analysis, and quality assurance procedures. In addition to these general sampling plan elements, other requirements will be identified in the following subtasks as they apply.

All sample analyses will be conducted at laboratories following EPA protocols while following strict chain-of-custody procedures.

- 1. Chain-of-Custody. Any field sampling collection and analyses conducted shall be documented in accordance with chain-of-custody procedures as provided by EPA. The Respondents shall prepare and submit as part of the work plan a description of the chain-of-custody procedures to be used.

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2. Quality Assurance/Quality Control (QA/QC). The Respondents shall prepare and submit as part of the work plan a Quality Assurance Project Plan for the sampling, analysis, and data handling aspects of the remedial investigation. The plan shall address the following points:

- a) QA Objectives for Measurement Data, in terms of precision, accuracy, completeness, representativeness, and comparability.
- b) Sampling Procedures
- c) Sample Custody
- d) Calibration Procedures, References, and Frequency
- e) Internal QC Checks and Frequency
- f) QA Performance Audits, System Audits, and Frequency
- g) QA Reports to Management
- h) Preventive Maintenance Procedures and Schedule
- i) Specific procedures to be used to routinely assess data precision, representativeness, comparability, accuracy, and completeness of specific measurement parameters involved.
- j) Corrective Action

b. Waste Characterization. Develop and conduct a complete sampling and analysis program to supplement existing data and to physically and chemically characterize all potentially hazardous waste, hazardous constituents, pollutants, industrial wastes or other wastes at the site. This activity should include identification of the location and probable quantities of subsurface wastes using appropriate methods.

The sampling plan developed for this subtask shall address incompatibility testing of wastes (tank and drum opening procedures if necessary). Wastes shall be analyzed and grouped in compatibility classes to support any subsequent conclusions about segregating wastes on-site and developing remedial alternatives.

As part of this subtask, all containers of hazardous waste, hazardous constituents, pollutants, industrial wastes or other wastes such as drums, tanks, piles, abandoned vehicles, etc. must be located on the site map. The physical condition of each container, characteristics (color and type) as well as other identifying marks (labels, manufacturer's names, graffiti, etc.) must be recorded in an orderly fashion and should be correlated with the results of chemical analysis for each container when available. A photographic record of each container should also be prepared and included in the Remedial Investigation Report.

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- c. Hydrogeologic Investigation. Develop and conduct a program to determine the present and potential extent of groundwater contamination. A sampling program shall be developed to determine the location of water bearing strata and other subsurface geologic features, groundwater flow direction, vertical and horizontal distribution of contaminants, background levels of contamination, and the ability of the facility and local geology to control or contain the contaminants. Long-term disposition of contaminants will be evaluated based on mobility of the contaminants, attenuation capacity of local soils and other geologic features, regional flow direction and quantity, effects of local pumping, and the presence of discharge/recharge areas. Computer models of flow and contaminate transport may be used to demonstrate conclusions reached as a result of this investigation and predict effects of future remedial actions.

The sampling plan developed for this subtask shall define the type of well construction and any geophysical or modeling techniques proposed.

- d. Soils Investigation. Develop and conduct a program to determine the nature and vertical and horizontal extent of contamination of surface and subsurface soils. Cores from groundwater monitoring wells may serve as soils samples.
- e. Surface Water and Sediments Investigation. Develop and conduct a program to determine the nature and extent of contamination of surface water and sediments. This program shall also evaluate the impacts of the contaminants on the floral and faunal communities in the surface water, sediments, and any adjacent wetlands.
- f. Air Investigation. Develop and conduct a program to determine the nature and extent of on-site and off-site contamination. This program shall also address the tendency of the substance identified through Waste Characterization to enter and disperse in the atmosphere, considering seasonal weather conditions and wind patterns.

The above tasks should be summarized in a single sampling plan which is to be included in the detailed work plan. (Other categories of investigations may be needed for specialized problems. These could include additional biological or radiological investigations.)

TASK 4 -- SITE INVESTIGATION ANALYSIS

The Respondents shall prepare a thorough analysis and summary of all site investigations and their results. The objective of this task will be to ensure that the investigation data are sufficient in quality and quantity to adequately describe the nature and extent of contamination and to support the feasibility study.

The results and data from all site investigations shall be organized and presented logically so that the relationships between remedial investigations for each media are apparent.

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- a. Data Analysis. Analyze all site investigation data and develop a summary of the type and extent of contamination at the site. This analysis shall include all significant pathways of contamination and an exposure assessment. The exposure assessment shall describe any actual or potential threats to public health, welfare, and the environment.
- b. Application of Potential Remedial Technologies. Analyze the results of the site investigations in relation to the potential remedial technologies applicable to the site. This analysis will determine the adequacy of data quality and quantity to support the feasibility study and will identify any additional data needs.

TASK 5 -- LABORATORY STUDIES AND BENCH-SCALE STUDIES (Optional)

The Respondents shall conduct any necessary laboratory and bench scale treatability studies required to evaluate the applicability of remedial technologies, e.g., leachate treatment, groundwater treatment, compatibility of waste/leachate with liners, cover, or other materials proposed for use in the remedy. The scope of this Task will depend on the results of Task 4. The Respondents will submit a separate work plan for any proposed laboratory studies for State concurrence.

TASK 6 -- FINAL REPORT

The Respondents shall prepare a final report covering the remedial investigations and submit copies to the Ohio EPA. The report shall include the results of Task 1 through 5.

TASK 7 -- ADDITIONAL REQUIREMENTS

- a. Reporting Requirements. Monthly Technical Progress Reports are required of the Respondents.

Content. For each on-going work assignment, the Respondents shall submit progress reports with the following elements:

1. Identification of site and activity.
2. Status of work at the site and progress to date.
3. Percentage of completion.
4. Difficulties encountered during the reporting period.
5. Actions being taken to rectify problems.
6. Activities planned for the next month.
7. Changes in personnel.

The progress monthly report will list target and actual completion dates for each element of activity including project completion and provide an explanation of any deviation from the milestones in the work plan schedule.

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FEASIBILITY STUDY

PURPOSE

The purpose of this feasibility study is to develop and evaluate remedial alternatives for Wright-Patterson Air Force Base.

The Respondents shall furnish the necessary personnel, materials, and services required to prepare the remedial action feasibility study.

SCOPE

The feasibility study consists of ten tasks:

Task 8 -- Description of Current Situation

Task 9 -- Work Plan

Task 10 -- Development of Alternative

Task 11 -- Initial Screening of Alternatives

Task 12 -- Detailed Analysis of Alternatives

Task 13 -- Evaluation and Selection of Preferred Alternative

Task 14 -- Final Report

Task 15 -- Additional Requirements

TASK 8 -- DESCRIPTION OF CURRENT SITUATION

Any changes to the description of the current situation from Task 1 shall be presented. Justification for changes must be based on results of the remedial investigation.

A site-specific statement of purpose for the response, based on the results of the remedial investigation, should be presented. The statement of purpose should identify the actual or potential exposure pathways that should be addressed by remedial alternatives. This statement of purpose shall be submitted to the State for concurrence before continuing the remaining tasks of the Feasibility Study.

TASK 9 -- WORK PLAN

A work plan that includes a detailed technical approach, personnel requirements, and schedules shall be submitted to the State for review and concurrence for the proposed feasibility study.

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TASK 10 -- DEVELOPMENT OF ALTERNATIVES

Based on the results of the remedial investigation, the Respondents shall develop a limited number of alternatives for source control or off-site remedial actions, or both, on the basis of objectives established for the response.

a. Establishment of Remedial Response Objectives

Establish site-specific objectives for the response based on public health and environmental concerns, information gathered during the remedial investigation, and the requirements of any applicable Federal or State statutes. Preliminary cleanup objectives shall be developed in consultation with and for concurrence by the State.

b. Identification of Remedial Technologies

Based on the remedial response objectives established above and the statement of purpose identified in Task 8, identify appropriate remedial technologies as a basis for the development of remedial alternatives. These technologies shall be identified on a media-specific basis, although consideration should be given to the interrelationship of the media. The technologies should be able to meet the response objectives. The list of potential remedial technologies developed in Tasks 2e and Task 4b shall be considered a master list of applicable technologies and shall be screened based on site conditions, waste characteristics, and technical requirements, to eliminate or modify those technologies that may prove extremely difficult to implement, will require unreasonable time periods to implement, or will rely on insufficiently developed technology.

c. Identification of Remedial Alternatives

Develop alternatives to incorporate remedial technologies, response objectives, and other appropriate considerations into a comprehensive, site-specific approach.

There may be overlap among the alternatives developed. All alternatives must meet the requirements of all applicable State and Federal environmental laws including permitting requirements. Alternatives shall be developed in close consultation with the State.

TASK 11 -- INITIAL SCREENING OF ALTERNATIVES

The alternatives developed in Task 10 shall be screened by the Respondents to eliminate alternatives, prior to detailed analysis, that are clearly not feasible or appropriate. All decisions made as a part of this screening of alternatives should be documented.

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The following consideration shall be used as a basis for the initial screening:

- 1) Effects of the Alternative. Only those alternatives that effectively contribute to protection of public health, welfare, and the environment will be considered further. Any alternatives that inherently present significant adverse effects will be excluded from further consideration.
- 2) Acceptable Engineering Practices. Alternatives that may prove extremely difficult to implement, will not achieve the remedial objectives in a reasonable time period, or that rely on unproven technologies will be excluded from further consideration.

TASK 12 -- DETAILED ANALYSIS OF ALTERNATIVES

The Respondents shall prepare a detailed analysis of the alternatives that pass through the initial screening in Task 11.

This detailed analysis shall consist of the following elements:

a. Detailed Description

The detailed description of each remaining alternative shall include as a minimum:

- 1) Description of appropriate treatment and disposal technologies.
- 2) Special engineering considerations required to implement the alternative, e.g., pilot treatment facility, additional studies needed to proceed with final remedial design.
- 3) Operation, maintenance, and monitoring requirements of the completed remedy.
- 4) Off-site disposal needs and transportation plans.
- 5) Temporary storage requirements.
- 6) Safety requirements for remedial implementation, including both on-site and off-site health and safety considerations.
- 7) An analysis of how the alternative could be phased into individual operations and a discussion of how these operations could best be implemented, individually or in groups, to produce significant environmental improvement.
- 8) A review of any off-site treatment or disposal facilities to ensure compliance with applicable RCRA, TSCA and State requirements, both current and proposed.
- 9) An analysis of the projected performance and expected results of the alternative with emphasis on potential for further future release of hazardous substances.

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b. Environmental Assessment

An Environmental Assessment (EA) shall be performed for each alternative including, as a minimum, an evaluation of each alternative's environmental effects, an analysis of measures to mitigate adverse effects, physical or legal constraints, and compliance with Federal and State regulatory requirements.

Each alternative will be assessed in terms of the extent to which it will mitigate damage to, or protect, public health, welfare, and the environment, in comparison to the other remedial alternatives.

c. Cost Analysis

The present worth cost of implementing each remedial alternative (and each phase of the alternative) as well as the annual operating and maintenance cost shall be presented. The cost shall be provided as a total cost and on an annual cost basis.

TASK 13 -- EVALUATION AND SELECTION OF PREFERRED ALTERNATIVE

The State shall review the results of the detailed analysis of alternatives prepared under Task 12 and select the preferred alternative.

The following considerations shall be used as the basis for selecting the cost-effective alternative:

1. Reliability. The alternatives that minimize or eliminate the potential for release of wastes into the environment will be considered more reliable than other alternatives.
2. Implementability. The alternatives most easily implemented shall be favored.
3. Effects of the Alternative. The alternatives posing the greatest improvement to (and least negative impact on) public health, welfare, and the environment will be favored.
4. Safety Requirements. The alternatives with the lowest adverse safety impacts and associated costs will be favored.

TASK 14 -- FINAL REPORT

A final report shall be prepared for submission to the State, including the results of Task 8 through 13. Copies of the report shall be submitted to the State.

TASK 15 -- ADDITIONAL REQUIREMENTS

Monthly Technical Progress Reports are required of the Respondents. These documents are described in Task 7 of the remedial investigation scope of work.

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Deliverables:

Remedial Investigation

1. Task 1a - Site Background
 - b - Nature and Extent of Problem
 - c - History of Response Actions
2. Task 2a - Safety Plan
 - c - Site Map
 - d - Community Relations Plan
 - e - Pre-investigation Evaluation
3. Task 3a - Work Plan
4. Task 4 - Site Investigation Analysis
5. Task 5 - Work Plan for Laboratory and Bench Scale Studies (optional)
6. Task 6 - Final Remedial Investigation Report
7. Task 7 - Monthly Technical Progress Reports

The State shall review and concur with Items 2 and 3 before field activities begin.

Feasibility Study

8. Task 8 - Statement of Purpose
9. Task 9 - Work Plan for Feasibility Study
10. Task 10a - Remedial Response Objectives
 - c - Identified Remedial Alternatives
11. Task 12 - Detailed Analysis of Alternatives Including Decisions Documents
12. Task 14 - Final Feasibility Study Report
13. Task 15 - Monthly Technical Progress Reports

The State shall review and concur with Items 8 and 9 before work on the feasibility study begins.

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